


Name: _____ TP: _____

Failure to show work on all problems or use complete sentences will result in a LaSalle.

<p>1) Simplify:</p> $\underbrace{-3\sqrt{45} + 3\sqrt{45}}_{\text{like terms b/c } \sqrt{45}} + 3\sqrt{6}$	<p>2) Simplify:</p> $\underbrace{-3\sqrt{18} + 3\sqrt{18}}_{\text{like terms}} - 2\sqrt{3}$
<p>3) Simplify:</p> $\frac{2}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{2\sqrt{3}}{\sqrt{9}} = \underline{\hspace{2cm}}$	<p>4) Simplify:</p> $\frac{3\sqrt{4}}{\sqrt{12}}$
<p>5) What are the solutions to the following equation?</p> $7 = \sqrt{24p + 1}$ $7^2 = (\sqrt{24p + 1})^2$ $49 = 24p + 1$	<p>6) What are the solutions to the following equation?</p> $\sqrt{-2 - 2n} = \sqrt{1 - n}$ $(\sqrt{-2 - 2n})^2 = (\sqrt{1 - n})^2$
<p>7) What are the solutions to the following equation?</p> $\sqrt{-16 + 10x} = x$ $(\sqrt{-16 + 10x})^2 = x^2 \quad (\quad) = 0 \quad (\quad) = 0$ $-16 + 10x = x^2$ $x^2 - 10x + 16 = 0$ $(\quad) (\quad)$	<p>8) What are the solutions to the following equation?</p> $\sqrt{-1 + 2k} = k$

<p>9) Expand: <i>Negative = smaller = left</i></p> <p>a. 4.3×10^{-5}</p> <p>b. 430×10^{-7}</p> <p>c. Which value is smaller <i>if any?</i></p>	<p>10) Given the <u>diameter</u> of a circle is <u>24 mm</u>, what is the <u>area</u> of the circle?</p> <p>(Leave your answer in terms of π)</p> <p><i>Diameter = longer word = longer ^{line} state</i> <i>radius = shorter word = shorter ^{line} state</i></p>  <p>$A = \pi r^2$</p>
<p>11) The volume of a cone is given by the formula: $V = \frac{1}{3} \pi r^2 h$, where <u>r</u> is the <u>radius</u> and <u>h</u> is the height. What is the volume of a cone with a <u>diameter</u> of <u>144mm</u> and a height of 40mm?</p> <p>$d = 144$ $r = \underline{\hspace{1cm}}$</p>	<p>12) What is the <u>area</u> of a swimming pool with a length of $(3x+5)$ and a width of $(4x-6y)$? $A = l \cdot w$</p>
<p>13) Solve the following equation in terms of b, give all solutions:</p> <p>$c + b^2 - 4 = 21$ $b^2 =$ $\sqrt{b^2} =$ $b =$</p>	<p><i>(time)</i></p> <p>14) <u>How long</u> is a badminton birdie <u>in the air</u> if the equation of it being hit off of a racket is $h = -16t^2 + 22h + 5$? <i>What is the time (x), when it hits the ground (y=0)?</i> NO <u>TERRY!</u></p>
<p>15) What is the sum of the solutions to the equation, $36x^2 - 144 = 0$? <i>square roots !!</i></p> <p>$36x^2 = 144$</p>	<p>16) If $(x^{3b+2})^4 = x^{42}$, then find the value for b.</p>

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1) Simplify:

$$-\sqrt{20} + 2\sqrt{45} + 3\sqrt{8}$$

$$-1 \cdot \sqrt{4} \cdot \sqrt{5} + 2 \cdot \sqrt{9} \cdot \sqrt{5} + 3 \cdot \sqrt{4} \cdot \sqrt{2}$$

*Like terms -
have the same
radical ($\sqrt{a} + \sqrt{a}$)

2) Simplify:

$$3\sqrt{5} + 3\sqrt{20} - \sqrt{18}$$

$$3\sqrt{5} + 3 \cdot \sqrt{4} \cdot \sqrt{5} - 1 \cdot \sqrt{9} \cdot \sqrt{2}$$

3) What are the solutions to the following equation?

$$\sqrt{n-6} = n-8$$

$$(\sqrt{n-6})^2 = (n-8)^2 \longrightarrow (n-8)(n-8)$$

$$n-6 =$$

4) What are the solutions to the following equation?

$$(x-9)^2 = (\sqrt{63-7x})^2 \quad (x-9)(x-9)$$

$$= 63-7x$$

5) What is the cubed root of 729? $x^3 = "x \text{ cubed}"$

- A. 9
B. 10
C. 243
D. 726

$$\sqrt[3]{729}$$

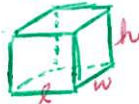
6) Which of the following statements best describes the cubed root of a number x , or $\sqrt[3]{x}$?

- A. A number that is equal to x when it is multiplied by 3
B. A number that is equal to x when it is divided by 3
C. A number that is equal to x when it is cubed
D. A number that is equal to x when it is squared

7) The volume of a standard, six-sided number cube used in dice games is 3.375 (cm^3). What is the length of one side of the number cube? $V = l \cdot w \cdot h$

- A. 0.563 cm
B. 1.125 cm
C. 1.5 cm
D. 1.7 cm

$$\sqrt[3]{3.375}$$



$$8) \sqrt[3]{\frac{x^{15}}{x^9}} = ? \quad \frac{\sqrt[3]{x^{15}}}{\sqrt[3]{x^9}} =$$

- A. x^8
B. x^3
C. x^2
D. x^{-2}

9) Simplify: $\sqrt[3]{343x^3y^6z}$

$$\sqrt[3]{343} \cdot \sqrt[3]{x^3} \cdot \sqrt[3]{y^6} \cdot \sqrt[3]{z}$$

10) Simplify: $\sqrt[3]{375x^2y^3}$

$$\sqrt[3]{375} \cdot \sqrt[3]{x^2} \cdot \sqrt[3]{y^3}$$

<p>11) Find: <i>positive = bigger = RIGHT</i></p> <p>a.) 8.3×10^4</p> <p>b.) 83×10^3</p> <p>c.) $.083 \times 10^6$</p> <p>d.) What did you notice with parts a, b, and c?</p>	<p>12) Given that the <u>diameter</u> of a circle is <u>36 feet</u>, what is the <u>circumference</u> of the circle? <i>$C = \pi d$</i></p>
<p>13) What is the simplified value of $8\sqrt{x^2 - y}$ when $x=5$ and $y=4$?</p> <p>Leave your answer in exact form, i.e. no decimals!!!</p>	<p>14) If a Frisbee is thrown up and follows the equation $y = -16t^2 + 12t + 4$, how long will it take for the Frisbee to hit the ground? <i>Time (x) at $y=0$</i></p>
<p>15) Find the <u>area</u> of a city block that has a length of $(x-2y)$ feet and a width of $(4y+x)$ feet. <i>$A = \ell \cdot w$</i></p> <p><i>$(x-2y)(4y+x)$</i></p>	<p>16) The volume of a sphere is given by $V = \frac{4\pi r^3}{3}$, where <u>r</u> is the <u>radius</u>. What is the volume of a globe with a <u>diameter</u> of 18 inches?</p> <p><i>$d = 18$</i></p> <p><i>$r = \underline{\hspace{1cm}}$</i></p>
<p>17) If $(x^{a+3})^3 = x^a$, what is <u>a</u> equal to?</p>	<p>18) Find the positive solution for <u>a</u> in the equation</p> <p><i> $\begin{array}{r} a^2 - 3b + 4 = 12 \\ + 3b \quad \quad + 3b \\ \hline a^2 + 4 \quad 12 + 3b \\ - 4 \quad \quad - 4 \\ \hline a^2 = 8 + 3b \\ \sqrt{a^2} = \sqrt{3b+8} \\ a = + \end{array}$ </i></p>

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<p>1) Simplify: $\sqrt[3]{128x^6y^7}$</p> <p>$\sqrt[3]{128} \cdot \sqrt[3]{x^6} \cdot \sqrt[3]{y^7}$</p>	<p>2) Simplify: $\sqrt[3]{\frac{x^3y^5z}{-216}}$</p> <p>$\frac{\sqrt[3]{x^3y^5z}}{\sqrt[3]{-216}} = \frac{\sqrt[3]{x^3y^5z}}{\sqrt[3]{-216}}$</p> <p>$\sqrt[3]{x^3} \cdot \sqrt[3]{y^5} \cdot \sqrt[3]{z}$</p>
<p>3) $-3 + \sqrt{3a+79} = a$</p> <p>$\begin{array}{r} -3 + \sqrt{3a+79} = a \\ +3 \quad \quad +3 \\ \hline \sqrt{3a+79} = (a+3)^2 \end{array}$</p> <p>A) {7} B) {7, 4} C) {7, 3} D) {7, -2}</p>	<p>4) $(v-5)^2 = (\sqrt{19-5v})^2$ $(v-5)(v-5)$</p> <p>A) No solution. B) {2} C) {-2, 2} D) {2, 3}</p>
<p>5) Simplify:</p> <p>$-3\sqrt{3} + 2\sqrt{24} - 2\sqrt{27}$</p> <p>$-3\sqrt{3} + 2 \cdot \sqrt{4 \cdot 6} - 2 \cdot \sqrt{9 \cdot 3}$</p>	<p>6) Simplify:</p> <p>$-2\sqrt{12} - \sqrt{45} - 3\sqrt{20}$</p>
<p>7a) Which of the following is equivalent to the <u>imaginary</u> number <u>i</u>?</p> <p>A) -1 B) $-\sqrt{1}$ C) 1 D) $\sqrt{-1}$</p> <p>7b) What is the standard form for writing a complex number?</p>	<p>8) Simplify: $\sqrt{-25} \rightarrow i\sqrt{25} =$</p> <p>A) $i\sqrt{5}$ B) 2i C) 3i D) -5 E) 5i</p>
<p>9) Simplify: $\sqrt{-100} \rightarrow i\sqrt{100}$</p> <p>A) 4i B) 5i C) 10i D) $25i\sqrt{2}$ E) $4i\sqrt{10}$</p>	<p>10) Simplify: $\sqrt{-24} \rightarrow i\sqrt{24}$</p> <p>A) $8i\sqrt{3}$ B) $2i\sqrt{6}$ C) $12i\sqrt{2}$ D) 24i E) None of the above</p>



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$i^2 = (-1)$ 14) $3i^2(-i^{15})(-5i)$ $3 \cdot i^2 \cdot (-i)^{15} \cdot (-5i)$	15) $-4i^2(3i^3)(-5i)$ $-4 \cdot 3 \cdot (-5) \cdot i^2 \cdot i^3 \cdot i$	16) $2i(-4 + 7i)$
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Mixed Review

17) Ms. Mason wants to build a turtle pen that is <u>3 times the area</u> of her current turtle pen. The turtle pen that she currently has is <u>3-foot by 7-foot</u> . What will the new turtle pen's area be? $A = l \cdot w$ $A = 3 \cdot 7$ $3A = 3(3 \cdot 7)$	18) Line p is parallel to line q. Line q passes through the point (4,-5), and the equation for line p is $-5x+10y=15$. What is the equation for line q? parallel = same slope $y = mx + b$ ↑ slope
19) Simplify: $(x^7 - 5x^4 + 8x^3 - 2) - (4x^7 - 3x^2 + 4x^4 - 2)$ $x^7 - 5x^4 + 8x^3 - 2$ $- 4x^7 + 4x^4 \quad -2 - 3x^2$	20) Solve: $2^2 + 2^0 - 2^{-2}$ → anything to zero power = 1 → negative = down stairs
21) Simplify: $\frac{16(x^2y^3)^4}{(8x^3y^5)^2}$	22) Simplify: $(3x\sqrt{5})^2$

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11) $\sqrt{\frac{-100}{121}} = \frac{\sqrt{-100}}{\sqrt{121}} = \frac{i\sqrt{100}}{\sqrt{121}} = \frac{i\sqrt{100}}{11}$	12) $\sqrt{-169x^3y^2} = i \cdot \sqrt{169} \cdot \sqrt{x^3} \cdot \sqrt{y^2}$	13) $2\sqrt{-49} + 2\sqrt{-81} =$
14) $(-2-6i) - (4-6i)$ $\begin{array}{r} -2-6i \\ -4+6i \\ \hline -6-6i+6i \\ \hline -6 \end{array}$	15) $-2i^2 - 8i + 22i^2$ $i^2 = -1$ $-2(-1) - 8i + 22(-1)$	16) Simplify: $2i + 3i + 15 + 2i^2$
17) A rectangle has a length of $3 + \sqrt{24}$ inches and a width of $\sqrt{8}$ in. Leave your answer in simplest radical form.		
a. Find the <u>perimeter</u> . $P = \text{add all sides}$ 	b. Find the <u>area</u> . $A = l \cdot w$ 	

Mixed Review

18) Simplify: $\frac{3(x^2y^5)^2}{(3x^2y)^5}$	19) Simplify: $(5\sqrt{11})^2$
20) Simplify: example: $(4x^5 + 3x^3 - 4x - 3) + (x^5 - 2x^2 - 3x^2 + 3)$ $\begin{array}{r} 4x^5 + 3x^3 - 4x - 3 \\ + \quad x^5 \quad \quad \quad - 5x^2 + 3 \\ \hline 5x^5 + 3x^3 - 4x - 5x^2 + 3 \end{array}$	21) The <u>circumference</u> of a circle is 42π . What is the diameter of the circle? $C = \pi d$

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1) Simplify: $\sqrt[3]{216x^3y^9}$ $\sqrt[3]{216} \cdot \sqrt[3]{x^3} \cdot \sqrt[3]{y^9}$		2) $\sqrt[3]{\frac{-27x^2y^3}{-343y^3}} = \frac{\sqrt[3]{-27x^2y^3}}{\sqrt[3]{-343y^3}}$ $\sqrt[3]{-27} \cdot \sqrt[3]{x^2} \cdot \sqrt[3]{y^3}$	
3) Solve: $1 = (\sqrt{8-n})^2$		4) Solve: $(p-1)^2 = (\sqrt{3p-3})^2 \quad (p-1)(p-1)$	
5) $3\sqrt{-7} + 5\sqrt{-7} =$ $3i\sqrt{7} + 5i\sqrt{7} =$	6) $\sqrt{-24w^2} \cdot 3\sqrt{w} = 3\sqrt{-24w^3}$	7) $-\sqrt{32}$ is equivalent to: A) $-4i\sqrt{2}$ B) $4i\sqrt{2}$ C) $-4\sqrt{2}$ D) $4\sqrt{2}$	
8) $(3i-8) - (-11i+4) - (i-1)$ $3i - (-11i) - i - 8 - (4) - (-1)$	9) $\sqrt{\frac{-36}{-169}} = \frac{\sqrt{-36}}{\sqrt{-169}}$	10) Which real number is equivalent to i^4 ? A. -1 B. $\sqrt{-1}$ C. 1 D. 4 E. There is no equivalent real number $i^2 = (-1)$	
11) $4i(9i) = 36i^2$ $=$	12) $4i(-6+i) =$	13) $(-2i)^4$ $(-2)^4 \cdot (i)^4$	